AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original) A method of compressing a multispectral image composed of a plurality of spectral images of an object captured in a wavelength range divided into a plurality of bands, comprising the steps of:

segmenting said multispectral image into a plurality of tile images;

performing principal component analysis on respective tile images to obtain for each tile image a principal component number of sets of principal component vectors and principal component images for the multispectral image;

determining from said plurality of sets, for each tile image, an optimum principal component number of sets of optimum principal component vectors and corresponding optimum principal component images that optimally represent image information about the multispectral image; and

expressing compressed image data for said multispectral image by means of at least said optimum principal component number of sets of optimum principal component images and optimum principal component vectors for each tile image.

2. (Original) The method according to claim 1, wherein the compressed image data for said multispectral image are expressed not only by said optimum principal component number of sets of said optimum principal component images and said optimum principal

component vectors but also by tile image information having information about tile numbers of said tile images, a tile position and an image size of said tile images.

3. (Original) The method according to claim 1, wherein said optimum principal component number is determined based on colorimetric values in a color space.

4. (Original) The method according to claim 1, wherein said optimum principal component number is a minimum principal component number at which an absolute value of difference between image information about a composite image that is composed of selected number of sets of said principal component vectors and said principal component images and the image information about an original image that is composed based on said multispectral image is below a specified value or an absolute value of variation in error from said original image which is presented when said composite image is determined by sequentially including in an order of contribution those principal component vectors which make greater contribution to said multispectral image does not exceed a predetermined value.

5. (Original) The method according to claim 1, wherein an image size of said tile images in terms of pixel is expressed as a power notation of 2 in both a longitudinal and a transverse direction.

6. (Original) The method according to claim 1, wherein said tile images all have an image size in terms of pixel.

7. (Original) An apparatus for compressing a multispectral image composed of a plurality of spectral images of an object captured in a wavelength range divided into a plurality of bands, comprising:

an image segmenting section for segmenting said multispectral image into a plurality of tile images;

a principal component analyzing section in which respective tile images obtained in the image segmenting section are subjected to principal component analysis to obtain for each tile image a principal component number of sets of principal component vectors and principal component images for the multispectral image; and

an optimum principal component vector/image extracting section which determines an optimum principal component number of sets of optimum principal component vectors and optimum principal component images that optimally represent image information about the multispectral image from said principal component number of sets of principal component vectors and principal component images as obtained in the principal component analyzing section; and

wherein image data for said multispectral image is compressed by expressing by means of at least the optimum principal component vectors and the image data for the optimum principal images for each tile image as obtained in said optimum component vector/image extracting section.

8. (New) A method of compressing a multispectral image composed of a plurality of spectral images of an object captured in a wavelength range divided into a plurality of bands, comprising the steps of:

segmenting said multispectral image into a plurality of tile images;

performing principal component analysis on respective tile images to obtain for each tile image a principal component number of sets of principal component vectors, said principal component number of sets of principal component vectors represented by n;

determining from said principal component number of sets, for each tile image, an optimum principal component number of sets of optimum principal component vectors, said optimum principal component number of sets of optimum principal component vectors represented by m; and

expressing compressed image data for said multispectral image by means of at least said optimum principal component number of sets of optimum principal component images and optimum principal component vectors for each tile image.

9. (New) The method of claim 8, further wherein m is determined based on a predetermined value.

10. (New) The method of claim 8, further wherein $m < n$.

11. (New) An apparatus for compressing a multispectral image composed of a plurality of spectral images of an object captured in a wavelength range divided into a plurality of bands, comprising:

a segmenting unit for segmenting said multispectral image into a plurality of tile images;

a principal component analysis unit for performing principal component analysis on respective tile images to obtain for each tile image a principal component number of sets of principal component vectors, said principal component number of sets of principal component vectors represented by n;

a determination unit for determining from said principal component number of sets, for each tile image, an optimum principal component number of sets of optimum principal component vectors, said optimum principal component number of sets of optimum principal component vectors represented by *m*; and

a compression expression unit for expressing compressed image data for said multispectral image by means of at least said optimum principal component number of sets of optimum principal component images and optimum principal component vectors for each tile image.

12. (New) The apparatus of claim 11, further wherein *m* is determined based on a predetermined value.

13. (New) The apparatus of claim 11, further wherein $m < n$.

14. (New) The apparatus according to claim 7, wherein the tile images comprise spatial segmentation of the multispectral image to form multiple spatially adjacent image segments.

15. (New) The apparatus of claim 7, wherein a size of each tile image varies in accordance with at least one of hue, lightness and saturation of the multispectral image at a position of the image tile.

16. (New) The apparatus of claim 14, wherein a size of each tile image varies in accordance with at least one of hue, lightness and saturation of the multispectral image at a position of the image tile.